Annals of Clinical and Analytical Medicine
Original Research

Evaluation of quality of life and depressive symptoms in patients receiving dialysis

Quality of life and depressive symptoms with dialysis

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Abstract
Aim: End- stage renal disease (ESRD) is defined as a progressive loss of renal function that becomes life-threatening, impacting the daily life of affected people and their family members. The objective of this study was to evaluate the psychiatric symptoms and general health status of ESRD patients receiving regular hemodialysis treatment in a particular center.
Material and Methods: All patients receiving regular hemodialysis due to end-stage renal disease (ESRD) in the Tirebolu district of Giresun province, Turkey were examined. Age, gender, body mass index, time elapsed since the first dialysis and urine output were questioned and recorded by interviewing the patients face to face. Psychiatric symptoms of the patients were evaluated using SCL-90-R scale and overall quality of life using SF-36 scale.
Results: A total of 33 patients receiving dialysis were included in the study. Depressive symptoms were found in 18% of the patients and phobic anxiety in 12.1%. The physical distress caused by dialysis was found as 30%, and the somatization level was 8%. There was a significant decrease in physical function and strength, especially in women. Accordingly, while the mean SCL-90 score of those with no urine output was 1.44±0.73, it was 0.77±0.52 for those with urine output, which was almost half (p=0.008).
Discussion: Patients receiving hemodialysis treatment for ESRD are found to have psychiatric symptoms as well as physical distress. Psychiatric and physical symptoms impair quality of life. Women suffer more from pain than men and their quality of life is worse. Having urine output provides mental and physical well-being.

Keywords
ESRD, Quality of Life, SCL-90, SF-36, Pain, Urinary Output

DOI: 10.4328/ACAM.21371 Received: 2022-08-27 Accepted: 2022-09-27 Published Online: 2022-10-19 Printed: 2022-10-20 Ann Clin Anal Med 2022;13(Suppl. 2):S89-92
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Introduction

End stage renal disease (ESRD) is defined as a progressive loss of renal function that becomes a life-threatening and debilitating chronic illness impacting the daily life of affected people and their family members [1]. The development of chronic kidney disease (CKD) and its progression is still a significant source of decreased quality of life and significant premature mortality [2]. As in the world, the number of patients with end-stage renal disease (ESRD) is increasing in Turkey and the number of patients receiving renal replacement therapy reached 83,783 as of 2019 [3].

Any disturbance in the human body can cause emotional, psychological and social reactions. Anxiety about the deterioration of bodily integrity, threat of death and even involuntary changes in routine diet can cause an emotional and psychological collapse [4]. The quality of life in ESRD patients is worse than in the normal population [5]. Although physical symptoms are thought to be the main determinant in the decrease in quality of life, major depression is also an important factor [6]. Psychiatric symptoms seen in dialysis patients are directly related to physical disorders and reduce patients' quality of life [7].

The loss of urination and renal function can lead to a strong emotional crisis in the patient. Although dialysis can significantly prolong a patient survival, it can replace only a small portion of normal physiological function of the kidney, and underlying disease is not cured by dialysis [8]. It has been reported that the patient undergoing dialysis is in an unusual existence, because the patient's dependent state is a source of serious discomfort [9]. Patients with ESRD on dialysis suffer from a burden of psychiatric symptoms because of the disease itself, its treatment or comorbid conditions. This condition is also associated with an increased risk of future hospitalization and mortality, underlining the need for early interventions [10]. Nevertheless, symptom burden amongst patients undergoing dialysis is often underrecognized [11]. It is therefore important to measure the quality of life in these patients through universally recognized scales for early recognition of psychiatric symptoms encountered by these patients and to take necessary measures, if necessary. The objective of this study was to evaluate the psychiatric symptoms and general health status of ESRD patients receiving regular hemodialysis treatment in a particular center.

Material and Methods

Before the beginning, the study protocol was approved by the local ethics committee of our hospital. All patients were informed about the objective of the study and gave written informed consent. The study was conducted in accordance with the relevant ethical principles of the Declaration of Helsinki revised in 2013.

All patients receiving regular hemodialysis due to ESRD in the Tirebolu district of Giresun province, Turkey were examined. The age, gender, body mass index, time elapsed since the first dialysis and urine output were questioned and recorded by interviewing the patients face to face. Since the education level of the patients was mostly primary school or below, no classification was made according to education level. According to the income level, patients were divided into two groups as those with an income at or below the minimum wage and those with a higher income. Psychiatric symptoms of the patients were evaluated using SCL-90-R scale and overall quality of life using SF-36 scale.

SCL-90-R Scale

Symptom Checklist-90-Revised (SCL-90-R) is a widely used survey tool developed by Leonard R. Derogatis to determine a number of psychological symptoms [12]. SCL-90-R includes 90 symptoms and evaluates nine symptomatic dimensions including: somatization, obsessive-compulsive disorder, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. Additional items include sleep, appetite disturbance, and guilt. According to the answers given to the questions, each question was given 1-4 points, "none" or "no" answer was not scored. The resulting total score was "total positive symptom"; while "general symptom level" was found by dividing the sum of the scores obtained by the total number of questions answered.

SF-36 Scale

The SF-36 is widely used to measure health status or quality of life (QOL) in both healthy and sick populations. SF-36 consists of seven subdimensions including physical functioning, role limitations due to physical and emotional problems, mental health, general health perception, bodily pain, social functioning, and vitality. Scores for the different domains are converted and pooled using a scoring key, for a total score indicating a range of low to high QOL. Validity and reliability of the Turkish version of Short form 36 has been widely studied for use in different diseases [13]. Reliability and construct validity of the SF-36 in Turkish cancer patients was studied by Pinar [14]. By examining the data obtained from the patients, the health status and the factors affecting the health status were investigated.

Statistical Analysis

Data obtained in this study were statistically analyzed using the SPSS (SPSS, Social Package for Social Sciences, IBM Inc., Chicago, IL, USA) software. The normality of the data was tested using the Shapiro-Wilk method. Pearson's Chi-square test was used in the comparison of non-parametric variables, Pearson's correlation test for determining correlation between the variables, and the Mann-Whitney U test for the comparison of non-normally distributed variables. Continuous variables are expressed as mean±standard deviation, minimum and maximum values and categorical variables as numbers and percentages. $P<0.05$ values were considered statistically significant.

Results

A total of 33 patients receiving dialysis were included in the study. The mean age of the patients was found as 62.6±15.5 (28-87) years. Of all patients, 15 (45.45%) were female and 18 (54.55%) were male. The mean body mass index (BMI) was calculated as 23.5±3.54 (17.5-31.6) Kg/m2. The demographic and basic data of the patients are shown in Table 1.

When the SCL-90 form scores were examined, it was seen that the mental problems were not at a level to cause psychoticism and paranoid pathology. However, depressive symptoms were found in 18% of the patients and phobic anxiety in 12.1%. The physical distress caused by dialysis was found as 30%, and the

somatization level as 8% (Table 2).

When the results of the SF-36 form were examined, there was a significant decrease in physical function and strength, especially in women. While pain is an important problem in women, it has been observed that it does not pose a problem in men. General health perception and vitality were similar in men and women, which is lower than in the normal population. It was observed that both groups were affected emotionally, but women were more affected. Mental health does not appear to have been affected. As a result, social functioning continued in both groups, which is not different from healthy individuals (Table 3).

No correlation was found between the income status of the patients and their SCL-90 and SF-36 scores or subgroup scores.

Table 1. Demographic and basic data of the patients

Patient number(n)	33
Mean age (years)±SD (min-max)	62.6±15.5 (28-87)
Gender (female/male)	15/18
Body Mass Index (BMI) (kg/m^2)±SD (min-max)	23.5±3.54 (17.5-31.6)
Level of income (≤minimum wage, > minimum wage)	14/19
Time since the first dialysis (months) ±SD (min-max)	55±48 (1-168)
Urinary output (no/yes)	15/18

Table 2. SCL-90 scores of the patients and the number of patients with high symptom levels

	Mean Score±SD	Number of patients with high and very high levels of symptoms
Overall mean of symptoms	0.69±0.46	3 (9.1)
Somatization	0.97±0.57	6 (18.1)
Obsessive-compulsive disorder	0.72±0.57	3 (9.1)
Interpersonal sensitivity	0.71±0.61	6 (18.1)
Depression	0.76±0.71	6 (18.1)
Anxiety	0.59±0.49	1 (3)
Hostility	0.51±0.57	2 (6.1)
Phobic anxiety	0.48±0.63	4 (12.1)
Paranoid ideation	0.46±0.38	0 (0)
Psychoticism	0.43±0.44	0 (0)
Additional items (Sleep, appetite disorder etc.)	1.08±0.7	10 (30.3)

Table 3. Subgroup averages of SF-36 scores of patients and healthy Turkish people

	General mean value of Turkish women±SD	Mean value of women in the study±SD	General mean value of Turkish men±SD	Mean value of women in the study±SD
Physical functioning	80.6±21.7	47.1±31.7	87.2±17.1	42.1±25
Role limitations due to physical problems	82.9±28.6	5.3±9.8	89.8±19.3	27.1±24.9
Bodily pain	81.0±20.2	53.2±31.6	85.1±16.4	90.6±12.9
General health perception	69.1±16.9	47.1±28.3	73.6±14.9	44.6±19.1
Vitality	63.4±13.7	25±25.6	65.7±11.9	24.6±23.4
Social functioning	90.1±12.9	92.8±18.9	91.7±12.8	97.9±7.2
Role limitations due to social problems	89.0±22.5	30.9±24.4	92.8±15.1	44.4±12.9
Mental health	70.1±11.4	68±19.8	71.0±10.6	74.7±13.9

No significant difference was found between time since the first dialysis and SCL-90 and SF-36 scores or subgroup scores. Two or three dialysis sessions a week had no effect on SCL-90 and SF-36 scores.

There was a significant difference in the additional items in the form of SCL-90 in patients with urine output compared to those without. Accordingly, while the mean score of those with no urine output was 1.44±0.73, it was 0.77±0.52 for those with urine output, which was almost half (p=0.008). The emotional role score in the SF-36 form was 33.3±19.9 in those without urine output, and 45.3±13.7 in those with urine output (p=0.033).

Discussion

There are very limited data available regarding the quality of life (QoL) of patients with ESRD maintained on dialysis in the developing world. In the present study, we investigated the effect of receiving dialysis on patients' quality of life.

The psychological and emotional effects of dialysis negatively affect daily physical activities [15]. The complete end of the kidneys' function and the replacement of life with dialysis causes an alienation in patients from their own body structures and functioning [7]. QoL in ESRD patients can affect their individuality in disease or improvement, but yet, the predictive role of QoL for improvement in CRF is still uncertain [16]. If these feelings of indecision about life concepts are not adequately answered, they lead to feelings of aggression and anger, and this can lead to social disengagement and even self-harm. In the present study, nearly one in five patients had signs of major depression and 30% of patients had physical distress. In the results of the SF-36 form, the most serious difference compared to the normal population was seen in physical function and limitations due to physical problems.

De Pasquale et al. reported that physical and mental distress scores were closely correlated in dialysis patients [7]. The adaptation to the ESRD features, knowing that it has no cure and treatment is highly complex, also means adapting to the numerous changes in quality of life, due to various symptoms in the course of the disease. Some of them cause different levels of physical limitation and functioning [17]. In a study, it was reported that the quality- of- life score did not change as the time passed since the first day of dialysis increased [18]. In another study, time since dialysis was associated with the QoL domains of physical health and work, but this was not significant in multivariate analysis [19]. In our study, it was observed that psychiatric and physical symptom scores did not increase linearly as the dialysis time increased.

The quality- of- life score is higher in males when all independent variables are excluded. In a study by Ismael et al. overall quality of life was higher among male dialysis patients, but the difference did not reach statistical significance (p=0.84) [20]. In this regard, the literature has revealed contradictory results. Rostami et al. stated that QoL was better in male than female patients [21], while Bayoumi et al. reported that female patients had a higher level of QoL than male patients [22]. In our study, the pain score was found to be significantly lower in women than in men. We found that the effect of pain on women was different from men, which may explain significant

limitations due to physical functioning.

Urine output may continue in some patients with ESRD. It can be expected that the quality of life will be higher as those with urine output can take more daily fluids. We found that daily activities such as sleeping and eating were less troublesome in those with urine output. Likewise, we found that the emotional role score was higher in those with urine output. In a study by Shafi et al. ESRD patients with urinary output reported higher QoL scores [23]. This may be due to a wider dietary choice created by urine output and the well-being brought about by greater daily fluid intake. van der Borg et al. stated that dialysis patients felt themselves in a strange existential situation, which is due to the changing body functioning [24]. The most obvious part of the change in body functioning noticed by the patient may be the absence of urine output. This suggests that urine output not only provides physical relief, but also provides psychological well-being as it prevents deterioration in body image.

Study Limitation

The major limitations of this study include the relatively small number of patients and being conducted in one region. However, we tried to prevent regional differences among the patients by including the patients receiving continuous hemodialysis treatment in only one district in our study. Finally, a control group could be included. However, given limited studies on this issue especially in developing countries, we believe that our findings will be guiding for future studies.

Conclusion

Patients receiving hemodialysis treatment for ESRD have psychiatric symptoms as well as physical distress. Psychiatric and physical symptoms impair quality of life. Women suffer from pain more than men and their quality of life is worse. Having urine output provides mental and physical well-being.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

Funding: *None*

Conflict of interest

None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.

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How to cite this article:

Mehmet Yilmaz Salman, Hilal Arslan Akgul. *Evaluation of quality of life and depressive symptoms in patients receiving dialysis. Ann Clin Anal Med 2022;13(Suppl. 2):S89-92*